NSERC Contact

Volume 19, No. 3
Fall / Winter 1994

Guidelines for Research Involving Human Subjects

The three federal granting councils, NSERC, the Medical Research Council, and the Social Sciences and Humanities Research Council, have decided to prepare joint Guidelines on the Ethics of Research Involving Human Subjects to replace their existing guidelines. The councils aim to ensure that the new guidelines address all areas of research involving human subjects, and that procedures for review and monitoring meet, and are perceived to meet, standards that are acceptable to the public.

A tri-council Working Group was formed to draft the joint guidelines. It prepared an Issues Paper and is now seeking comments from those who wish to contribute. The draft guidelines should be ready for consideration by the councils in mid 1995. The councils will distribute the draft guidelines for public comment, and the draft will be revised in light of the comments received before the formal statement of policy is released.

Interested individuals and organizations can participate in the development of the guidelines by communicating their views to the Working Group on Ethics of Research With Human Subjects by December 30, 1994. All correspondence, including requests for the Issues Paper, should be addressed to:

Dr. Francis Rolleston
Medical Research Council
1600 Scott Street, 5th Floor
Ottawa, Ontario K1A 0W9
Fax: (613) 954-1800
E-mail: frolleston@hpb.hwc.ca.

Membership of Working Group

M. Asch, Alberta
B. Dickens, Toronto
J. Joly, Laval
N. Kenny, Dalhousie
D. Kinsella, Calgary

F. Lowy (Chair), Toronto
D. Martin (Secy), Toronto
B. McGillivray, B.C.
M.-H. Parizeau, Laval
R. Scott, N.B.
J. Werker, B.C.

Misconduct Investigations - Clarifying the Roles

Earlier this year the three granting councils published *Integrity in Research and Scholarship*, a document that sets out the councils' policy and process for dealing with allegations of misconduct. In implementing the policy, the councils have stated that, to be eligible to receive council funds, institutions must put in place by June 1995 a formal process for dealing with allegations. This condition ensures that all universities will have a mechanism to deal with integrity issues.

The policy calls for universities to assume an active role in dealing with allegations of misconduct, and gives the councils the right to review such investigations and to refuse to accept their conclusions should the process be found to be inadequate or unfair. A direct role for the councils was considered inappropriate, simply because, if the councils were to become part of the process, they would not be in a position to question or reject any conclusions reached. When the tri-council document was circulated widely, in draft form, there was no disagreement on this assignment of responsibilities. As part of its implementation of the policy, NSERC created a Committee on Professional and Scientific Integrity (see Committee on Professional and Scientific Integrity).

The tri-council document puts considerable emphasis on the promotion of ethical values and conduct to reinforce integrity in research and scholarship. To assist in furthering awareness of and sensitivity to issues relating to integrity, the councils sponsored a conference in Toronto on November 28 and 29, entitled "Integrity in Research and Scholarship: A Collective Responsibility." The conference was aimed at reinforcing the commitment of the councils and research institutions and their partners to the promotion and reinforcement of high standards of integrity in research and scholarship. Over 150 researchers and university administrators as well as government, funding agency and private sector representatives attended. They examined the factors that promote or discourage integrity, defined the responsibilities of the main stakeholders, and recommended over 40 principles, policies and mechanisms for the promotion of high standards of integrity. The highlights were presented in a media briefing at the end of the conference. A Report will be available early in the new year.

Committee on Professional and Scientific Integrity

The mandate of this committee is to advise the President on actions, including sanctions, that should be considered regarding a beneficiary of NSERC funds or an institution, following an investigation conducted by the institution, by NSERC under the direction of an Officer of the Council, or by the law enforcement authorities. Investigations may arise as a result of allegations of scientific misconduct, financial misconduct, or breaches of NSERC requirements regarding research with animals, human subjects or biohazards.

The committee is normally composed of four members of the Executive Committee of Council, i.e., the Vice-President and three other members, who are not in a conflict of interest on the specific case under review.

NSERC Elects a New V.-P.

Dr. Robin L. Armstrong, F.R.S.C., President and Vice-Chancellor of the University of New Brunswick, has been reappointed to Council and confirmed as Vice-President of NSERC. He was elected Vice-President by the Council at its meeting in October, and the appointment was recently ratified by the Governor in Council. Dr. Armstrong replaces Dr. Jack I. Clark, President and CEO of the Centre for Cold Ocean Resources Engineering (C-CORE) and professor of engineering at Memorial University of Newfoundland.

Dr. Armstrong received a Ph.D. in 1961 from the University of Toronto, and since then has held various academic and administrative appointments at the University of Toronto and the University of New Brunswick. The author of several books and articles, he was a Rutherford Memorial Fellow in 1961-62, received the Canadian Association of Physicists' Herzberg Medal in 1973 and Medal of Achievement in 1990, and was elected Fellow of the Royal Society of Canada in 1979. He has served on the Board of Directors and as a Member of the Canadian Institute for Advanced Research, and as Vice-President and President of the Canadian Association of Physicists. Prior to his appointment to Council in 1991, he participated in NSERC activities as member and chair of NSERC's Physics Grants Selection Committee. Since his appointment, he has been a member and chair of the Committee on International Relations. As Vice-President of NSERC, Dr. Armstrong becomes a member of the Executive Committee and ex officio member of Council's standing committees; he will assist the President with specific projects during his three-year term.

Three Council Members Appointed

The Honourable John Manley, Minister of Industry, recently announced three appointments to the Natural Sciences and Engineering Research Council: Dr. Ronald W. Davies, professor in the Department of Biological Sciences at the University of Calgary; Dr. Carolyn M. Hansson, Head of Materials and Metallurgical Sciences at Queen's University; and Dr. Thomas C. Hutchinson, professor in the Environmental and Resource Studies Program at Trent University. Well known for their professional competence and expertise, they represent a broad range of academic backgrounds and business experience.

Dr. Davies received a Diploma in Education (1964), a Ph.D. (1967), and a D.Sc. (1986) from the University of Wales. Since 1967, he has held various academic positions at the University of Wales, the University of British Columbia, and the University of Calgary. Dr. Davies has authored and co-authored numerous journal articles, government reports, and book chapters. He has acted as an expert consultant in his field for a number of national and international organizations and as a referee for academic journals as well as granting agencies.

Dr. Hansson received a doctorate in physical metallurgy (1966) from the Imperial College, London, England. Since then she has held various positions, both as an academic and as a research scientist. She was an Assistant Professor at Columbia University and an Associate Professor at SUNY (Stony Brook) before taking up her current position. She also worked at several laboratories, including the Danish Corrosion Centre in Denmark, where she was Head of the Research Department. She has received several awards including the Achievement Award of the Society of Women Engineers and the Concrete Prize from the Danish Concrete Association. Dr. Hansson has served and is serving on a number of committees in Canada and abroad, including NSERC's Committee on Targeted Research.

Dr. Hutchinson received a B.Sc. in botany from Manchester University in 1960 and a Ph.D. in ecology from Sheffield University in 1964, and has held various academic positions at the University of Toronto and at Trent University. He has authored several scholarly books and articles. Dr. Hutchinson has served as a member or Chair of international committees such as the National Academy of Sciences expert committee on Atmosphere and Biosphere, and the Canadian SCOPE Committee on Environmental Consequences of Nuclear War, as well as various NSERC and NRC committees. His honors include the George Lawson Medal of the Canadian Botanical Association and the Award of Merit from the city of Toronto for his educational services, and he is a Fellow of the Royal Society of Canada. He was a member of NSERC's Evolution and Ecology Grants Selection Committee and Advisory Committee on Life Sciences, and is on the Council's

Collaborative Project Grants Selection Panel.

Science and Technology Review

The government's wide-ranging review of the federal investment in science and technology has covered a lot of ground since it was announced in June. We know that many of you took the opportunity to provide an individual or group submission, or to participate in the various public consultations -- there were twenty-five workshops across Canada, five regional conferences, and a national roundtable. Concurrently, three sub task forces (on Wealth Creation and Sustainable Development, Quality of Life and Risk Assessment, and Advancement of Knowledge) were evaluating the science and technology activities of federal departments and agencies. Their final reports were sent to a senior review committee composed of the relevant Assistant Deputy Ministers. The reports, as well as the information received during the external consultations, will be passed on to the National Advisory Board on Science and Technology, which will prepare a final report and recommendations to the government. The results of the S&T Review are expected to feed into the next federal budget.

For some time now, senior members of the federal government have been advocating the increased use of S&T in Canada's business sector as vital to Canada's economic success and continued prosperity. In his speech to the House of Commons Standing Committee on Finance on October 17, the Minister of Finance, Paul Martin, stated that "We need to do much better both as a government and a country in harnessing Science and Technology to improve productivity and growth. This is not a secondary issue. In an important way, ideas and their applications are the only way in which productivity can grow over time. In today's world, an ignorant economy is a stagnant economy." As the government assesses its investment in S&T and faces difficult choices, the university research community must send a strong message about its contributions to the wealth of the nation and the well-being of Canadians.

NSERC would like to thank all those who took the time to provide their input and to underline the importance of university research as a foundation for technological and scientific advances. Many suggested that universities be urged to play an even greater role in identifying and helping to find some solutions to the country's economic difficulties. Although the S&T review is almost completed, we should not lose the momentum in bringing these issues to the public's attention and sharing our enthusiasm for and pride in the contributions made by university research.

The 1994-95 Strategic Grants

Competition

A total of 617 applications requesting $52.8 million were received this year as compared to 810 applications requesting $ 76.6 million received in 1993-94. This represents a 24% decrease in the number of requests received and a 31% decrease in the amounts requested.

All applications meeting the program's objectives were assessed using the three equally weighted criteria: excellence of the project, socio-economic relevance, excellence of the applicants. The nine peer review panels recommended 195 new awards totalling $14.4 million in the first year. This represents a 32% competition success rate in terms of the number of applications and a 27.7% funding rate. Table 1 shows the requests and new awards for each mission statement area.

Table 1: Requests and New Awards by Mission Statement Area

	Requests		Awards	
Area	No.	$	No.	$
Biotechnology	74	6 488 810	23	1 900 382
Energy	50	3 571 351	15	1 140 791
Environmental Quality	81	6 310 176	22	1 491 591
Food Agr. & Aqua.	105	8 604 464	43	2 662 611
Forestry	25	2 296 776	8	616 972
I.M.P. & P.	110	8 758 712	39	2 855 093
Information Technology.	82	8 244 240	19	1 684 892
Manufacturing Systems.	20	1 909 457	9	713 616
Mineral Resources.	12	936 967	3	251 772
New Directions.	22	2 047 788	5	404 770
Oceans & Inland Waters.	36	3 648 281	9	686 031[1]
Total.	617	52 817 022	195	14 408 521

[1] This amount does not include a $227,000 award for DFO shiptime.

In addition to the new awards, payments, totalling $25.5 million, were approved for 293 instalments for ongoing strategic grant projects. Table 2 provides a breakdown of the awards (new and instalments), by mission statement area, over the past 4 years. Figure 1 (not available on GOPHER) provides a comparison of the areas based upon the percentage of the program budget; Food Agriculture and Aquaculture and I.M.P. & P. continue to dominate as the two largest areas in terms of percentage of program budget.

Table 2: Strategic Grants Program Expenditures[1]

Area	1991/92		1992/93		1993/94		1994/95	
	No.	$	No.	$	No.	$	No.	$
Biotechnology	63	4.7	60	4.5	53	4.5	56	4.7
Energy	35	2.3	34	2.4	35	2.4	39	2.8
Env. Quality	75	5.9	76	5.9	66	4.8	58	4.3
Food, Agr. & Aqua.	79	6.0	85	6.4	87	7.2	105	7.7
Forestry	15	1.1	26	2.3	18	1.5	19	1.5

I.M.P. & P.	101	7.7	91	8.1	96	7.8	94	7.4
Info. Technology	52	4.6	57	5.2	56	5.8	48	5.1
Mfg. Systems	6	0.5	11	1.1	14	1.3	17	1.5
Mineral Resources	9	0.6	16	1.2	17	1.1	16	1.1
New Directions	26	2.2	14	1.3	13	1.8	11	1.2
Oc. & In. Waters	18	1.8	25	2.5	25	2.8	25	2.6
Total	479	37.4	495	40.9	480	41.0	488	39.9

(1) In millions of dollars.

The Strategic Grants Program continues to provide the majority (74%) of its competition budget for multidisciplinary and group research. Funding for individual projects (18%) and conference grants (2%) remained relatively unchanged from previous competition years. Equipment awards were only 8% of the competition budget, down from 1993-94 when they represented 16% of the funds awarded. The program encourages university researchers to develop creative and innovative solutions to practical problems. The following projects were highly rated and funded by the selection panels this year and are examples of projects that will stimulate the interaction between university researchers and the users of their research.

Dr. J. Zhu, along with three collaborators from the Department of Chemical and Biochemical Engineering at the University of Western Ontario, has been awarded $255,592 over the next three years to pursue research on the mechanisms of gas-solids downer reactors and their applications to petroleum processing and solid waste pyrolysis. The results of this project will provide an alternative method for solid waste treatment and will have significant socio-economic impact to society since solid waste could be consumed and converted in useful energy/products in downer reactors. The application was accompanied by three strong Statements of Interest from industrial supporters who indicated that the results would be of direct benefit to the petroleum processing industry.

Dr. T. Utigard is the recipient of a three-year strategic grant ($194,200) for a research project developing an environmentally sound method for the refining of primary and secondary aluminum. If successful, the results of this project could increase the efficiency of the aluminum refining process while minimizing the environmental impact of the operation and reducing operating costs at the same time.

A research team led by Dr. Pierre Savard has received $261,000 for a strategic research project investigating the use of microwave energy for the treatment of heart rhythm disorders. If successful, the results from this project could lead to a new curative therapy for heart rhythm disorders that would eliminate palliative therapies such as antiarrythmic drugs or costly implantable defibrillators. This application was accompanied by strong Statements of Interest from three small- to medium-sized Canadian medical devices companies with keen interest in a project that could lead to the development of a new technology for the treatment of heart rhythm disorders.

Strategic Grants Program: Strengthening the University-Industry Collaboration

The Strategic Grants program occupies a special niche within the overall NSERC program structure. By facilitating and promoting collaboration between university researchers and the industrial users of the research results, the program stimulates precompetitive research and training in areas that are important to Canada's economy. Given its limited budget and its strategic nature, the program must be focused on and responsive to the changing priorities of Canadian industry. For the past two years, Council and its advisory committee, the Committee on Targeted Research, have been studying ways to increase the impact of the Strategic Grants program by strengthening the university-industry interactions and enhancing the program's focus on those priorities.

A survey of Canadians from the university, government and industrial communities with experience in a broad array of sectors was conducted at the beginning of the year. As a result, it was recommended that the program's emphasis shift toward the support of technologies and their application in sectors where there is the potential for significant economic impact. This recommendation is consistent with the program's evolution over the past few years.

While discussions to date have shown support for the concept of focusing on the development of technologies and their application, some fundamental issues still need to be addressed. For example, Council is exploring the structure of the review process and mechanisms to ensure increased industrial participation, particularly by the small- and medium-sized entreprises, in the development and conduct of research projects. Over the next few months, Council will carry out further consultations with the community and will decide the extent of any changes to be made along with the implementation time frame. Researchers should note, however, that **the current program will remain in effect for the 1995-96 Competition.**

Collaborative Project Grants: First Awards Announced

With a budget of $9 million, NSERC's first Collaborative Project Grants (CPG) competition attracted 974 applications. The very large response meant that a two-phase selection process was necessary (in the spring issue of "CONTACT," the program description distributed to universities, and the "Researcher's

Guide," NSERC had stated that if more than 600 applications were received, the selection would proceed in two phases). In phase 1, each application was rated by three panel members: the first internal reviewer (and the second for highly interdisciplinary applications) was selected on the basis of appropriate expertise; the remaining were randomly assigned). Each application was judged on:

- the quality of the proposal;
- the excellence of the researchers;
- the nature and extent of collaboration; and
- the quality and extent of training of highly qualified personnel.

For the first three criteria, members had a "budget of scores" (derived from a normal distribution) to which they had to adhere. For the fourth criterion, members were not constrained. Members returned their scores to NSERC, and at their policy meeting in June, NSERC informed the panels of the resulting average scores, and their standard deviations. In general, the scoring among the internal members was remarkably consistent. The panels discussed applications having a variation in scoring, as well as those with a score close to the selection point. In fact, the majority of applications were discussed. Following discussion, a total of 552 applications (57%) were selected by the panels to pass on to the phase-II review, which included external referee reports.

In September, phase-II selections were made during a 5-day meeting of each panel. The panel members concluded that there were more meritorious applications than could be funded within the available budget, and consequently the choice of the applications to be recommended for funding was difficult. However, a small amount of money not required for the Strategic Grants competition was transferred to the CPG program, meaning that a total of $9,369,602 (in first year instalments) was awarded within the CPG program to 107 collaborative teams (for an average award of $87.6K). The final results, for each panel, are summarized in Table 1.

Table 1: Results of the CPG Competition by Panel

Panel	Requests Phase I	Requests Phase II	Awards	Success rate %	Average grant ($000)
A	247	150	25	10.1	100.8
B	273	139	31	11.4	81.0
C	294	166	32	10.9	86.4
D	160	97	19	11.9	83.0
Total	974	552	107	11.0	87.6

As can be seen in Table 2, the 107 awarded projects span the discipline areas funded by NSERC. In addition to representation through the applicant, i.e., the principal investigator, disciplines are, of course, also represented through the co-applicants. There is an average of 4.45 investigators, including the applicant, on each collaborative team. The co-applicants are Canadian university faculty,

foreign researchers, Canadian government and industrial researchers, in approximately that order of predominance. There are both intra- and interdisciplinary collaborations represented.

Table 2: Results of the CPG Competition by the Discipline Area of the Applicant

Discipline Area(1)	Requests	Awards	Success Rate %	Average Grant ($000)
Earth Sciences	65	10	15.4	91.8
Interdisciplinary	7	1	14	69
Physical Sciences	231	29	12.6	85.5
Life Sciences	225	28	12.4	95.4
Engineering	239	25	10.4	82.5
Math. & Stat.	73	6	8.2	83.1
Other (2)	89	6	5.5	87.3
Comp. & Inf. Sci.	45	2	4.4	75.5
Total	974	107	11.0	87.6

(1) Disciplines have additional representation through co-applicants.
(2) Applicant does not hold an NSERC grant.

The results by home province of the applicant, are given in Table 3. All provinces (except Newfoundland and P.E.I) have additional representation through the co-applicants.

Table 3: Results of the CPG Competition by the Home Province of the Applicant

Province	Requests	Awards	Success Rate %	Average Grant ($000)
British Columbia	157	15	9.6	100.9
Alberta	82	9	11	82.6
Saskatchewan	15	0	0	0
Manitoba	29	3	10.3	73
Ontario	355	42	11.8	85.1
Quebec	267	34	12.7	88
New Brunswick	14	2	14.3	72.1
Nova Scotia	38	2	5.3	91.3
P.E.I	5	0	0	0
Newfoundland	12	0	0	0
Total	974	107	11	87.6

In terms of the gender of applicants (where this is known), the success rates for male and female applicants is identical (though there were 10 times as many male applicants). In terms of rank of the applicant, associate professors had a success rate of 13.1%, compared to 11.4% for professors, and 6.8% for assistant professors.

The very large response to this program meant that the workload for applicants, referees, panel members, and NSERC staff was very heavy. NSERC is reviewing the experience of the first competition with a view to improving subsequent competitions, and reducing workload.

NOIs Not Required for the 1995 CPG Competition

Beginning with the 1995 competition, applicants for a Collaborative Project Grant (CPG) do not have to submit a Notification of Intent (NOI), i.e., Form 190, in advance of their application. They must, however, provide referee suggestions to NSERC with their application, using Appendix E of Form 101. The deadline for CPG applications is May 1.

IMPORTANT: Appendix E of Form 101 is now an essential component of a CPG application. In accordance with NSERC policy, a CPG application not including this appendix (or any of the other required information) will be rejected as incomplete.

NSERC Helps Universities Manage Intellectual Property

NSERC will invest up to $6 million over three years in a new program to strengthen Canadian universities' ability to manage their intellectual property and to attract industrial partners to exploit it. The Intellectual Property Management program (IPM) is designed to assist universities of all sizes, singly or in groups, who are prepared to make a new or increased commitment toward a higher level of industry liaison activities. By supporting the universities own efforts to manage their intellectual property effectively, NSERC aims to accelerate and extend Canadian industry's access to and use of advances in Canadian university research.

Funds for the IPM program will be available in fiscal year 1995-96, from the existing budget of the Research Partnerships rogram. Details on how the program will be implemented are to be worked out in close consultation with the universities over the next few months. Two kinds of block grants are envisaged:

- to support established University Industry Liaison Offices (UILOs) to improve the services they provide; or
- to assist universities without UILOs to pool their resources and/or benefit from sharing the experience of universities with better developed technology transfer capabilities.

Although only one competition is planned, the program may be extended beyond the initial three-year period if it receives a ositive evaluation.

Once the procedures for the 1995-96 competition have been finalized, they will be sent to Canadian universities. In the meantime, if you have any questions on the new program, please address them to:

Margaret Caughey
Research Partnerships Program, NSERC
Telephone: (613) 996-4993
E-mail: MEC@NSERC.CA.

NSERC Releases Report on Materials Research Facilities

In 1993, NSERC created an ad hoc committee to investigate the needs for major materials research facilities in Canada (see the summer 1993 issue of *CONTACT*). Last summer, the committee's interim report was widely circulated to interested parties. The comments received were taken into account and the final report, entitled *Major Materials Research Facilities in Canada's Future*, was released for distribution last month.

The CMRF concluded that "clusters of equipment" play a key role in materials research, but that stable infrastructure support for these clusters is seriously inadequate, and rationalization of the management, operation, accessibility and financing of equipment "clusters" is necessary. Respondents to the interim report overwhelmingly supported strengthening the "clusters" concept. In terms of major national facilities for materials research, the CMRF concluded that, as a modern industrial nation, Canada needs access to both neutron and synchrotron radiation facilities, but this will effectively be denied unless improved facilities and equipment are made available.

The CMRF made the following recommendations:

1. NSERC should play a leading role in the process of facilitating and accelerating initiatives to co-ordinate resources for materials research and establish national or regional "clusters" of facilities.
2. When national or regional clusters of facilities are established, the infrastructure necessary to operate each cluster must be provided through appropriate co-operation of federal and provincial agencies and of industry for the useful lifetime of that cluster.
3. Canada should make an immediate commitment to develop a fully equipped reactor-based national source for neutron beam research.
4. Canada should make an immediate commitment to develop a fully equipped dedicated national source for synchrotron radiation (SR) research.
5. Immediately upon acceptance of Recommendations 3 and 4, proposals for the construction of both national research facilities should be requested and peer reviewed, and a cash flow plan for construction of the two facilities should be designed.
6. NSERC should initiate co-operative efforts among parties drawn from Industry Canada, Canadian universities, AECL, CINS, CISR, NRC, MRC, and other interested

parties, to explore neutron beam and SR sources.

Council discussed the CMRF report at length during its meeting on October 17 and 18, and accepted recommendations 1, 2, and 6 of the report. In view of uncertainties surrounding the outcome of the Federal Program Review and the Science and Technology Review, however, the members did not feel that this was an opportune time to act on recommendations 3, 4 and 5. They also requested better cost estimates and a more complete demonstration of the economic benefits deriving from the construction of the major facilities. In the meantime, NSERC staff has been mandated to bring forward proposals on strengthening the "clusters" concept, and to explore neutron and synchrotron radiation sources in co-operation with other stakeholders. From these consultations, some of the additional information required by Council will evolve, and recommendations 3, 4, and 5 can again be brought forward.

Copies of the CMRF report may be obtained by contacting:

Linda Mealing
Program Officer, NSERC
Telephone: (613) 943-2886
E-mail: COLLAB@NSERC.CA.

Research Update

Chair Boosts Manitoba's Aerospace Industry

The new NSERC Industrial Research Chair in Aerospace Materials at the University of Manitoba is a collaborative undertaking by NSERC; five Manitoba aerospace firms, Bristol Aerospace Ltd., Boeing Canada Technologies Ltd., Standard Aero Ltd., the Manitoba Aerospace Association, and AECL Research Whiteshell Laboratories (Pinawa); the province's Economic Innovation and Technology Council; and the University. NSERC's share of the $2.2 million committed to the chair is $772,500 over five years.

The chair is aimed at enhancing the competitive advantage of the local industry by assisting it to solve diverse manufacturing and production problems; providing the university an opportunity to contribute to the fundamental understanding of material behaviour; and training engineers at the undergraduate and graduate level through research projects of direct use to the aerospace industry.

Dr. Mahesh Chaturvedi, a well-established materials researcher in the University's Department of Mechanical and Industrial Engineering, will head the aerospace materials research program in collaboration with the sponsors.

Research into Environmental Health a Priority at

McMaster...

Earlier this year, Deputy Prime Minister and Minister of the Environment Sheila Copps announced the establishment of an Eco-Research Chair at McMaster University. The chair program is taking a cross-disciplinary look at environmental hazards such as Great Lakes pollution and their effects on human reproduction and health. The federal government's Eco-Research Program, which is jointly administered by the Social Sciences and Humanities Research Council, the Medical Research Council and NSERC, is contributing $800,000 in funding over four years. The Regional Municipality of Hamilton-Wentworth is adding another $500,000. Dr. John Eyles, a McMaster professor of geography, heads the program, which links researchers from many disciplines within the natural, social and health sciences.

...and at the University of Victoria

NSERC, B.C. Hydro and Calgary-based TransAlta Utilities are providing more than $1.5 million to fund an NSERC Industrial Research Chair at the University of Victoria to research the possible effects of electromagnetic fields on human health. The initiative is designed to help remove some of the uncertainty about exposure to electromagnetic fields. Knowledge acquired through the program could prevent potential environmental and occupational health problems should some fields prove to be dangerous and avoid unnecessary restriction of new technologies that are found to be safe. The chairholder is Dr. Maria Stuchly, internationally known for her research in this area.

...and at the University of Quebec in Montreal

NSERC and Hydro Québec recently renewed their support for the Environmental Research Chair at the University of Quebec in Montreal (UQAM) for another five-year period. Since January 1, 1990, under the leadership of chairholder Claude Hillaire-Marcel, a team of environmental scientists has carried out research on immediate environmental problems such as water pollution as well as long-term fundamental studies on climatic and oceanic changes. The group reported significant advances in the understanding of the origin and movement of mercury in the lakes and hydroelectric reservoirs in northern Quebec, and of the links between climate and oceanic conditions in the Northwest Atlantic over the past 140,000 years.

Two MOUs Signed With the National Research Council

Canadian university researchers and small- and medium-sized enterprises (SMEs) are the beneficiaries of Memoranda of Understanding signed by NSERC and the National Research

Council (NRC) earlier this year.

In March, the two councils signed an agreement to collaborate in fostering the transfer of research results from universities to industrial small- and medium-sized enterprises (SMEs). The mechanism for collaboration between the two agencies was set out in the Memorandum of Understanding signed by Mr. Leo Derikx, NSERC's Director General of Targeted Research, and Dr. Clifford N. Baronet, Vice-President of NRC/IRAP (Industrial Research Assistance Program). SMEs can use this new mechanism to find out how they can benefit from the research results and knowledge coming from Canadian universities and how they can use these new findings to develop and commercialize new products and manufacturing processes. For detailed guidelines, contact the university's Industry Liaison Office or:

Dan Sinai
Research Partnerships Program, NSERC
Telephone: (613) 995-5667
E-mail: dxs@nserc.ca.

A second Memorandum of Understanding signed by Presidents Peter Morand of NSERC and Arthur Carty of NRC on November 16 gives Canadian university researchers, through NSERC, guaranteed access to new state-of-the-art, world-class equipment for a four-year period. Under the terms of the MOU, NSERC's Research Partnerships Program of its Targeted Research Directorate is purchasing 25% of the up-time on a new Silicon-Germanium Chemical Vapour Deposition System, at a cost of $400,000. This microelectronics wafer production system is being purchased and installed in a Class 100 clean room at NRC, pursuant to an agreement between the Council's Institute for Microstructural Sciences and Northern Telecom, at a cost of $1.6 million. It will make cutting edge scientific capabilities available to researchers working in the important area of silicon-germanium technologies.

The facility will be managed and operated on a day-to-day basis by the professional staff of the Institute for Microstructural Sciences, under the supervision of Director General Dr. Peter Dawson. University researchers can arrange access to the equipment through the facilities manager; matters of policy, equitable allocation and asset protection will be handled by a tripartite steering committee, comprising representatives from NRC, Northern Telecom, and the university community. University researchers will be responsible for direct operating costs, such as materials and supplies, for NSERC/NRC projects they wish conducted. For further information, contact:

Peter Dawson
Institute of Microstructural Sciences
Telephone: (613) 993-9369.

Competition Under Way for New NCEs

The Networks of Centres of Excellence (NCE) competition now under way targets five priority areas for Canada. The competition comes in the wake of the federal government's announcement in March that 10 original networks would be renewed and that $48 million of the $197 million allocated to fund Phase II of the NCE program would be available for a limited number of additional networks in key areas. These areas are:

- advanced technologies (materials, software engineering);
- environment;
- health research;
- technology-based learning;
- trade, competitiveness and sustainability.

All of these areas are strategically important to Canada in terms of economic, social and environmental benefits. They also complement the research themes of the existing networks, and provide opportunities for innovative approaches that cross traditional disciplinary and sectoral boundaries. The goal of the NCE program is to mobilize Canada's research talent in all sectors and apply it to the task of developing the economy and improving the quality of life of Canadians. "This program is unique from other federal government programs which support research and development," said Dr. Jon Gerrard, Secretary of State (Science, Research and Development) during his announcement in March. "The participating university researchers must demonstrate that they are conducting leading-edge research to meet international standards of excellence, and that they are accelerating the transfer and diffusion of research results by establishing working relationships with other Canadian researchers, institutions, the private sector and other potential users. The networks are also challenged to secure complementary support from sources other than the federal government and develop and retain world-class scientists and engineers in technologies that are essential to Canada's productivity and economic growth."

A Selection Committee representing an appropriate balance of expertise was appointed by the NCE Steering Committee (made up of the Presidents of the three granting councils and the Deputy Minister of Industry Canada) to evaluate the letters of intent and the applications in the target areas. In October, the Selection Committee reviewed the 65 letters of intent received and evaluated them according to the relevance of the proposed network to the specific target area, and to five equally-weighted Phase II criteria:

- excellence of the research program;
- highly qualified personnel;
- networking and partnerships;
- knowledge exchange and technology exploitation; and
- network management.

As a result, fifteen applicants were invited to submit full proposals by January 13, 1995.

Expert peer review panels in each target area are being appointed to assist the Selection Committee in the evaluation of the full applications. These expert panels will review the proposals, which will include meeting with representatives of selected groups of applicants, and will prepare reports for the Selection Committee. The chairperson for each of the expert panels will also be requested to respond to questions and provide additional information during the Selection Committee's deliberations.

To be successful, a network must excel in each of the selection criteria cited above. If the budget permits, one network will be funded in each of the target areas. No more than one network will be funded in any single area. In April 1995, the Selection Committee will provide the NCE Steering Committee with a list of networks recommended for funding in each of the five target areas. The Selection Committee's report will provide the rationale for recommendations, with a summary analysis of each application, and may include a list of networks worthy of honorable mention that could be funded if additional resources were to be available. The report will be made public. The successful new networks are expected to begin operation in September 1995.

Meanwhile, the 10 renewed networks are moving with full speed into Phase II after signing their internal and funding agreements.

The renewed networks listed in alphabetical order are:

- Canadian Bacterial Diseases Network (CBDN)
- Canadian Genetic Diseases Network (CGDN)
- Canadian Institute for Telecommunications Research (CITR)
- Concrete Canada
- Inspiraplex -- respiratory health network
- Institute for Robotics and Intelligent Systems (IRIS)
- Mechanical and Chemimechanical Pulps Network
- Micronet -- microelectronic devices, circuits and systems
- NeuroScience Network, and
- Protein Engineering Network of Centres of Excellence (PENCE)

Show Your Appreciation

If the number of letters we have received since creating an award for "Friends of NSERC" in the spring of 1990 is any indication, many NSERC-funded researchers are indebted to members of the general public. For some, field work, in particular, might have been far more expensive and less

productive if private individuals had not lent their local knowledge and logistic assistance. If you have found yourself the recipient of the enthusiastic support of a non-scientist in recent months, why not take the time to show your appreciation?

Or, let us do it for you by sending a Friend(s) of NSERC Certificate to the individual or group you have identified. Remember, if you are funded by NSERC in any capacity, you may nominate private citizens who have provided assistance, material or logistic support. For instance:

An associate professor at McGill University nominated officials of a hydro company who were instrumental in securing him permission to install nestboxes on hydro poles so that kestrels would be attracted to nest in them. This action saved a graduate student "untold hours and effort in his M.Sc. study. Otherwise, he would have had to install the boxes on trees far in from the road, as well as secure permission to go on private land."

A professor at the University of Guelph doing research with homing pigeons nominated a private citizen who not only made his trained homing pigeons available for the research but also transported them to the release site.

An NSERC postgraduate scholarship holder at Dalhousie University nominated four individuals in two companies for their invaluable assistance to her thesis research on the measurement of chair comfort in the workplace. As a result of the efforts of those nominated, one company paid the study volunteers and "facilitated all aspects of the project, from test schedules and recruitment sessions to logistics and union considerations;" the other donated three passive tilt chairs.

If you would like to nominate someone, just send us a note, including details of how they helped you as well as their name and mailing address, and we'll send them a "Friend of NSERC" certificate thanking them on your behalf and NSERC's for their help.

Address nominations to:

Friends of NSERC
Communications Division
NSERC
Ottawa, Ontario K1A 1H5
Fax: (613) 943-0742
E-mail: COMM@NSERC.CA.

Accolades

The Corporate-Higher Education Forum, an autonomous, non-

profit organization of university and corporate leaders that fosters linkages between Canada's educational and business communities, recently presented its 1994 Awards:

The Bell Canada-Forum Award for outstanding achievement in collaborative research went to Dr. Brian C. Conway, Professor Emeritus in the Department of Chemistry at the University of Ottawa. One of the world's leading electrochemists, he has collaborated widely with industrial partners to develop new products and improve production processes while also contributing substantially to the fundamental science of electrochemistry. Dr. Conway is a former NSERC Industrial Research Chair holder and a past member of NSERC's Chemistry Grants Selection Committee, Energy Strategic Grants Selection Panel, and PDF Selection Committee.

Dr. J. Peter McGeer, Managing Director of the Ontario Centre for Materials Research, received the Xerox Canada-Forum Award for excellence in facilitating university-industry collaboration in research. Dr. McGeer has built up a leading-edge collaborative research organization that ranks with the best in the world. He is a past member of NSERC's Committee on Targeted Research.

The Canadian Federation of Biological Societies recently named Dr. Brock Fenton, Chair of the Biology Department at York University, the winner of the 1993 Gordin Kaplan award for his contributions to the public awareness of science. He is a world authority on bats, and they have enabled him to cultivate a talent for sharing his scientific enthusiasm with students and the general public. Dr. Fenton is a group chair of several NSERC grants selection committees. He is also a member of NSERC's E.W.R. Steacie Memorial Fellowships Committee and Committee on Research Grants.

Dr. Scott Tremaine, Director of the Canadian Institute for Theoretical Astrophysics, has been elected a Fellow of the Royal Society (London). His research interests include the structure and dynamics of galaxies, the origin of comets, the dynamics of planetary rings, and the formation and long-term evolution of the solar system. He is a past member of NSERC's Space and Astronomy Grants Selection Committee. In 1988, NSERC awarded him an E.W.R. Steacie Memorial Fellowship.

Dr. Marc Le Maguer, Chair of the Department of Food Science at the University of Guelph, has been awarded the prestigious Palme Académique by the Government of France. Dr. Le Maguer was honoured for his contributions to food science and his work in establishing an educational exchange between the University of Guelph and a consortium of four schools and universities in Paris, Dijon, Nancy and Nantes, France. The Palmes Académiques were first awarded by Emperor Napoleon I in 1808. Today, they are awarded annually to about 200 scholars in France and fewer than 10 around the world. Dr. Le Maguer is a past member and current chair of NSERC's Food, Agriculture & Aquaculture I Strategic Grants Selection

Panel.

Dr. Roderick Wasylishen, a professor in the Department of Chemistry at Dalhousie University, has won the Gerhard Herzberg Award for outstanding achievement in the science of spectroscopy. Dr. Wasylishen is a past member of NSERC's Chemistry, and Analytical and Physical Chemistry Grants Selection Committees.

The Royal Society of Canada awarded a Rutherford Memorial Medal to Dr. Michael Thewalt, a professor in the Department of Physics at Simon Fraser University. He was honoured for his groundbreaking research on the optical properties of semiconducting materials. Dr. Thewalt is internationally recognized as an expert in the design, fabrication and testing of prototype electronic and optoelectronic materials. He is a past member and chair of several NSERC committees.

Dr. Gordon Drake, a professor in the Department of Physics at the University of Windsor, was awarded the Gold Medal for Achievement in Physics by the Canadian Association of Physicists in recognition of his outstanding and continuing contribution to physics. He is a leading scholar of theoretical atomic physics. Dr. Drake is a past member of NSERC's Physics Grants Selection Committee, and Scholarships and Fellowships Mathematical and Physical Sciences Selection Committee.

Two past NSERC committee members from the University of Toronto are winners of 1994 Izaak Walton Killam Memorial Prizes. Dr. Adrian G. Brook, University Professor in the Department of Chemistry, and Dr. C. André T. Salama, University Professor in the Department of Electrical Engineering, were the recipients of the $50,000 Killam Prizes. These prizes are given by the Canada Council in recognition of world-class achievement by Canadians in any of the disciplines in the natural sciences, health sciences and engineering.

Dr. Brook has enjoyed an international scientific reputation for more than thirty years as a pioneer in the field of synthetic and mechanistic organosilicon chemistry. His seminal contributions have resulted in this area of research being studied and used in hundreds of laboratories around the world. He is a past member and chair of NSERC's Chemistry Grants Selection Committee.

Dr. Salama is highly respected internationally in academic and industrial research environments. He has made many contributions that have been used broadly in several areas of semiconductors and integrated circuits, including process technology, device physics, modelling and circuit design. He holds the J.M. Ham Chair in Microelectronics, sponsored by Northern Telecom Limited, Bell Northern Research, and NSERC, is the Program Leader and a Principal Investigator in Micronet, one of the federal Networks of Centres of Excellence, and is a past member of NSERC's Information Systems

Strategic Grants Selection Panel.

NSERC and SSHRC Combine Administrative Services

NSERC and SSHRC recently signed an agreement to combine their administrative services. NSERC's Corporate Systems and Services Directorate and SSHRC's Administration Branch have been brought together in a new Common Services Unit.

Directly responsible to the presidents of both councils, the new unit will provide services in the areas of finance, human resources, informatics, and administrative support (records, mail, etc.).

This measure results from a desire for greater economy and efficiency, and was made possible when the two agencies moved into the same building late last year. The new unit aims to reduce administrative costs. It will also help to increase the efficiency of certain services each council offers to its clientele.

Update on Chairs in the Management of Technological Change

Applications for the joint NSERC/SSHRC program to support university research chairs in the management of technological change will now be accepted at any time. Annual grant competitions will no longer be held. Ten chairs have been established under the program since 1989, and it will run until four more chairs have been awarded or until March 31, 1996.

Universities interested in submitting chair proposals should contact their research grants offices, NSERC, or SSHRC to obtain a copy of *Chairs in the Management of Technological Change: Guide for Applicants*.

Forms 100 and 101 Available Electronically

For the past two years, NSERC, MRC, SSHRC, and FCAR (the Fonds pour la formation de chercheurs et l'aide à la recherche) have been working together to develop a common approach to electronic application forms. Several types of e-form software were tested and Jetform, a Canadian developed and owned software, was selected as the basis for the granting agencies' common application forms.

The common electronic application form was developed in

response to comments and requests from the research community over the years. Through a common approach, researchers, university administration, and granting agencies benefit from a standardized and simplified application process and from various time-saving features built into the software such as pop-up windows with lists of universities, codes, etc. from which users can select data rather than typing it themselves, and automatic calculation of budget totals. In the future, a key benefit will be the opportunity to attach other documents to the form and to transmit and capture the application data electronically, via the Internet.

Researchers wishing to complete their grant application electronically will need to have access to the JetForm Filler software. The granting councils have negotiated an agreement with JetForm Corporation that offers the research community three options for purchasing the software at a discount. Universities can:

- order site licences of Jetform Filler, or
- buy concurrent licences.

Both of these options are based on universities creating a central distribution point. Under the first option, each licence with a manual on diskette costs $48 (vs. retail cost of $186) and each licence with a hard copy manual costs $66. Those interested should contact the research grants office to verify which, if any, of these options their university has implemented. As a third option, researchers can obtain a licence directly from Jetform by contacting the JetForm Corporation at (613) 594-3026 and quoting agreement number 94107. Individual licences for the JetForm Filler cost $64 (with a manual on diskette) or $82 (with a hard copy manual).

All the options include a two-year Upgrade Agreement, which provides free upgrades to new releases of JetForm Filler. Licensed users may have Jetform Filler installed on their office and home workstations and on their laptop, but they may only use one copy of the software at a time.

Once researchers have the JetForm Filler, they can obtain the electronic version of NSERC's Personal Data (form 100) and Application for a Grant (form 101) via the Internet from NSERC's Gopher server (NSERC.GOPHER.CA) or on diskette from their university research grants office.

Online With NSERC

If you've recently misplaced one of your NSERC publications, don't worry -- you're only a gopher and a mouse-click away from it! That's right. To better serve its community, NSERC has gone online.

On September 1, the *Researcher's Guide* and the *Code Book*

became available on Internet. At the end of the month, the electronic versions (WordPerfect 5.1 and JetForm) of forms 100 and 101 and the Special Issue of "CONTACT" were available as well. You will soon have access to other NSERC newsletters and guides, as well as to press releases, reports, committee membership lists... In the meantime, however, since both the organization of the NSERC Gopher menus and the services provided will be evolving rapidly, be sure to check the menus regularly.

Our Internet address is gopher.nserc.ca (port 70). If your computer system has access to the Internet, all you need is a Gopher client to communicate with our server.

Created: 1995-08-31 ▲ Important Notices
Updated: 2004-02-24